

# Grade 4 Math Scoring Guidance

**2015-2016 NYC Baseline Performance Tasks**

## Instructions

- The following pages contain guidance on the scoring of the above-named NYC Performance Task.
- Distribute this guide to all staff scoring the task. *Please note: Fall baseline tasks may be administered and scored by the regular classroom teacher and results may be used to plan for instruction throughout the year.*
- The scoring guidance is intended to be used in conjunction with the rubric, which details indicators of performance levels on all rubric traits.

# Overview of the NYC Performance Tasks

The NYC Performance Tasks are comparable baseline and End-of-Year, open-ended assessment pairs that are offered in math, ELA, science, and social studies and promote the instructional shifts of argument and critique, use and analysis of evidence, and exposure to complex texts. The tasks are designed for students to demonstrate their skills in reviewing and analyzing presented evidence and creating an evidence-based argument.

The tasks respond to and support the diversity of curriculum and instruction that exist across NYC schools and act as a resource in these varied settings to support collaborative discourse around curriculum, instruction, and assessment. Tasks are designed to support the Citywide Instructional Expectations by promoting knowledge of students, facilitating alignment to an instructional focus, and developing a culture of collaborative professional learning.

A skills-based, standards-driven rubric accompanies each task and, where feasible, is content agnostic so that it can be used in a variety of ways with other curricular and instructional materials. Rubrics are aligned to the Common Core standards and content-specific New York State standards where appropriate. Topic selection in each grade and subject was influenced by New York City scope and sequence documents.

The following scoring guide structure was adapted from CPET and provides annotated student work samples that show the relationship between the student response and the criteria in the rubric. A matrix of rubric scores and rationales follows each individual student work sample. The guide can also be used to norm scoring practices across teams of educators.

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## Design Principles for the Math Performance Tasks

### Focus Standards

While there may be multiple Common Core standard alignments (partial or full) for each trait in the rubric, the focus standards are used to inform design consistency across grades. In math, the Practices are used as the unifying design principle across grades in lieu of content standards. Grade-level content standard alignment is represented on each rubric.

- MP1: Make sense of problems and persevere in solving them
- MP4: Model with mathematics

See the last page of this guide for a chart of standards alignment per rubric trait across all grade levels.

### Design Concept

The design concept for math addresses the following in each grade band:

Grades K-1

- Inventory

Grades 2-12

- Presentation of context
- Multiple mini-task questions addressing that one context

### Content and Structure

The topic (e.g., "plants") in each task is used to provide context for students to demonstrate mastery of the focus standards and content standards in math. The design of the task is not for students to demonstrate content knowledge on any particular topic. The content standards chosen represent the major work of the grade, and are structured to measure both discrete and complex skill mastery. Unlike other subject area rubrics, rubric traits in math measure the total allowable score points per question; therefore, not every trait on the rubric has descriptors through four points.

# Grade 4 Math Scoring Guidance

## Task Overview

NYC Mathematics Performance Tasks are mathematics tasks in which students are presented with a series of connected questions. Each question on the task is intended to address understanding and proficiency of mathematical content, as well as engagement with mathematical practices.

### Student Task

Students produce **a numerical** and/or written response. Sample student responses have been provided to you; further information regarding these annotated student works are provided below.

### Evaluator Task

You are being asked to use your best, professional judgment to score these student responses using the rubric provided.

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## General Instructions for Using the Rubric

- (1) Scorers will use the separate rubric provided to assess student performance.
- (2) These traits are being scored for content and practice. Point values may vary from question to question, and there is no eligible point value for areas on the rubric that are blank.
- (3) You are to provide one score for each rubric trait. Please be sure to enter all trait scores on the appropriate Schoolnet Answer Sheet for each student. The final score for the task will be calculated elsewhere.
- (4) All student work in the task booklet should be scored, regardless of whether the student completed or attempted every question.
- (5) A score of “Zero (0) – No attempt” should be considered carefully before being used. See included student work samples for guidance. Scores of “Zero (0) – No attempt” should only be given if:
  - (a) a student did not attempt that question on **any portion** of the task, or
  - (b) if his/her work is **completely copied** directly from the task or texts, or
  - (c) if his/her work is completely unrelated to the question or prompt.

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## Annotated Student Work

The following pages include annotated student work samples at a variety of performance levels. The samples have been annotated to highlight student responses in relation to the rubric traits. Each sample is followed by a summary page indicating the sample’s score on each rubric trait, in addition to the reasoning for the score. Please review these samples both independently and **with a team** to ensure a common understanding of the rubric traits at all performance levels.

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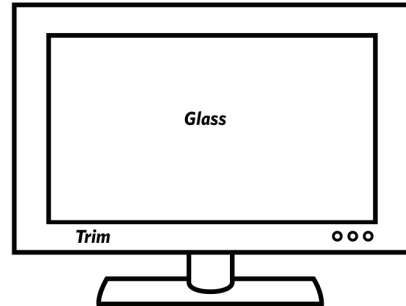
## Best Practices for Scoring

- Before scoring a specific task, teacher **teams** should review the task and the rubric and discuss expected performance at each level for each rubric trait.
- As a group, review annotated student work and **discuss evidence for each score**, including discussing non-blank, zero-scored traits. Work to understand the provided scores and rationales for one sample.
- Individually score a few provided student work samples. After working individually, **compare your assigned scores** to those given by others and to the provided scores and rationales. Be sure you understand how each score was assigned, and that your team agrees, before moving to independent work.
- After independently completing a set of student work from your school, review the set with the group to see if you have drifted away from your original scoring, becoming either more severe or more lenient in response to the task. Consistent scoring is important.



# Super Screens

Yumiko and Lucia have just started a new business called the Super Screen Company. They have invented a new kind of glass and a special metallic trim to go around the edge of the glass. The glass will be used for rectangular screens on video game consoles and flat screen televisions. Yumiko and Lucia are thinking about the different size screens they can make and what they should charge.



Lucia has started a table with some of the sizes of screens, but it is incomplete.

3 inches      3 inches      (3 in  $\times$  3in) 9 square inches      (3in+3in  $\times$  2)12 inches

Super Screen Sizes

Length	Width	Area	Perimeter
2 inches	2 inches	4 square inches	8 inches
4 inches	18 inches	72 square inches	44 inches
9 inches	14 inches	126 square inches	46 inches
3 inches	8 inches	24 square inches	22 inches

$$\begin{array}{r} 14 \\ + 9 \\ \hline 23 \end{array}$$

$$23 \times 2 = 46 \quad 9 \times 11 = 99 + 9 = 108 + 9 = 117 + 9 = 126 \quad 1 \times 72 = 2 \times 36 = 4 \times 18 = 8 \times 9$$

1 Compare the 2-inch-by-2-inch screen and the 3-inch-by-8-inch screen:

$$4 \times 18 = 72$$
$$\begin{array}{r} 72 \\ \swarrow \searrow \\ 44 \end{array}$$

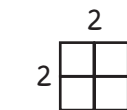
How much longer is the trim around the larger screen? 14 inches

How many times larger is the area of the glass for the larger screen? 6 times larger

T1

Student gives both correct answers.

$$\begin{array}{r} 22 \\ - 8 \\ \hline 14 \end{array}$$

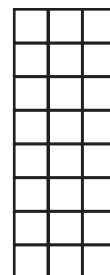


perimeter: 8 in

$$4 \times 6 = 24$$

$$2 \times 2 = 4$$

$$8 \times 3 = 24$$



perimeter: 22 in



### Super Screen Sizes

Length	Width	Area	Perimeter
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3 inches	8 inches	24 square inches	22 inches

- 2 What is the width of the 9-inch-long screen? 14 inches

T2

Student gives the correct answer and shows a valid way to do the work.

Show your work.

$$\begin{array}{r} 9 \times \underline{\quad} = 126 \\ 9 + \underline{\quad} = 23 \times 2 = 46 \end{array}$$

- 3 What is the length and width of the screen with the 72-square-inch area?

T3

Student gives correct answer and shows correct work.

4 and 18 inches

Show your work.

$$4 + 18 = 22$$

$$\begin{array}{r} 22 \times 2 = 44 \\ \begin{array}{r} \diagup \quad \diagdown \\ \times \quad \times \\ \hline \end{array} \end{array}$$



T4

Student gives correct answer and shows correct work: converts 3 ft. to 36 in., multiplies 36 x 42.

- 4 What is the area, in square inches, of a screen that is 3 feet long and 42 inches wide?

1, 512 square inches

Show your work.

$$1 \text{ foot} = 12 \text{ inches}$$

$$3 \times 12 = 36 \text{ inches}$$

$$\begin{aligned} 36 + 36 + 36 + 36 &= 144 \\ 36 \times 2 &= 72 \\ 36 \times 4 &= 144 \\ 144 \times 10 &= 1,440 \end{aligned}$$

$$\begin{array}{r} 72 \\ + 1,440 \\ \hline 1,512 \end{array}$$

$$36 \times 42 = 1512$$

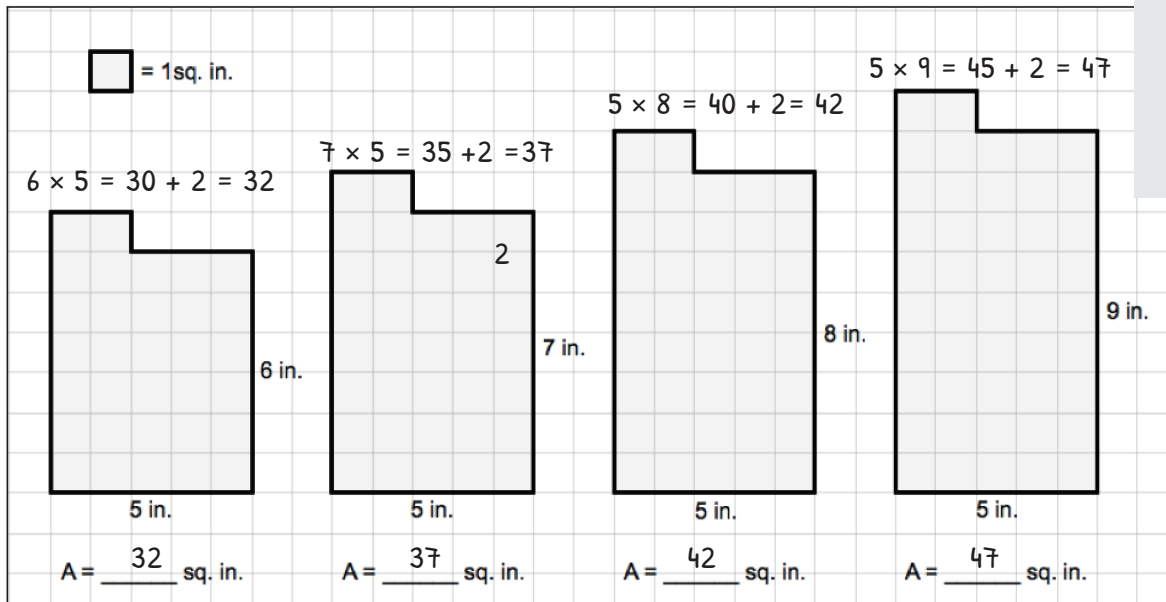
$$\begin{array}{r} 36 \\ \boxed{?} 42 \end{array}$$

Yumiko is making special 5-inch wide screens. The screens' area will be rectangular, with a 2-square-inch area added for display. Yumiko wants to make an organized chart that can later be used to find the cost of the screen and the trim.

- 5a Find the area of each screen for Yumiko so she can make an organized table.

T5

Student gave all four correct areas and the correct digit for the ones place. Student did not identify or explain the pattern.



- 5b If they made a 5-inch-wide by 23-inch-long screen like those above, and Yumiko calculated the area, which digit would be in the ones place? 7

- 5c Identify the pattern and explain how you know without calculating the actual area.

$$5 \times 20 = 100$$

$$5 \times 23 = ?$$

$$\begin{array}{r} 5 \times 3 = +15 \\ \hline 115 \end{array}$$



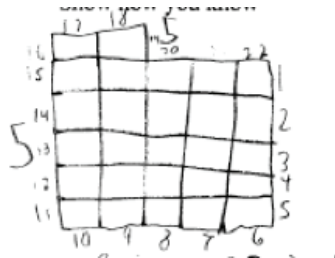
T6

Student gives correct answer with correct work.

- 6 The area of the 5-inch-by-5-inch screen with the additional 2 square inches of area is 27 square inches and its perimeter is 22 inches. The glass to make the screen costs 10 cents for each square inch, and the trim costs 5 cents for each inch.

How much is the total cost for a 5-inch-by-5-inch screen including glass and trim? \$3. 80

Show your work.



Perimeter: 22 inches

Area: 27 square inches

$$27 \times .10 = \$2.70$$

$$22 \times .05 = 1.10$$

$$22 \div 2 = \$1.10$$

$$\$2.70$$

$$+ \$1.10$$

$$\$3.80$$

- 7 Lucia has 310 square inches of glass. She would like to use the glass to make screens in which each screen has an area of 8-square-inches. She thinks she can make exactly 35 screens. However, Lucia is incorrect. Use estimation to explain why Lucia's thinking is incorrect.

T7

Student did not make an attempt.

# Sample A - Anchor Paper Commentary

**Subject/Course:** Math

**Task Title:** Super Screens

**Grade Level:** 4

**Year:** 2015-2016

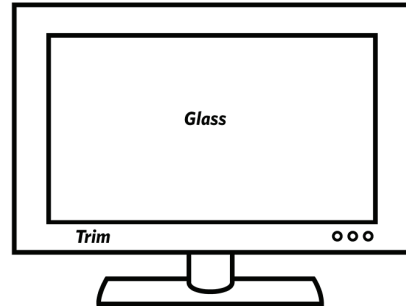
Rubric Traits	Anchor Score	Commentary/Rationale	Maximum Score
<b>T1</b> Trait 1	2	The student finds the correct answers; subtracting 8 from 22 to arrive at 14 and finding the missing factor $4 \times 6 = 24$ .	2
<b>T2</b> Trait 2	2	The student finds the correct answer, 14 in., finding the missing factor for $9 \times \underline{\quad} = 126$ .	2
<b>T3</b> Trait 3	3	The student finds the correct answer, 4 in. by 18 in., showing that the perimeter of 4 in. by 18 in. is 44 inches ( $22 \times 2$ ) and the area is 72 square inches ( $4 \times 18$ ).	3
<b>T4</b> Trait 4	3	The student finds the correct answer, 1,512 sq. in., by first converting 3 ft. to 36 in., then multiplying 36 and 42.	3
<b>T5</b> Trait 5 (a-c)	3	The student finds the area of all 4 screens. The student correctly finds the digit in the ones place, but does not explain the pattern to find the answer.	4
<b>T6</b> Trait 6	2	The student finds the correct answer \$3.80 by multiplying the costs by the measurements and adding the products:  $27 \times .10 = 2.70$ $22 \times .05 = 22$ $22 \div 2 = 1.10$ $2.70 + 1.10 = 3.80$	2
<b>T7</b> Trait 7	0	Student leaves question blank.	2

**Score = 15/18, Level 4: Exceeding Standards**

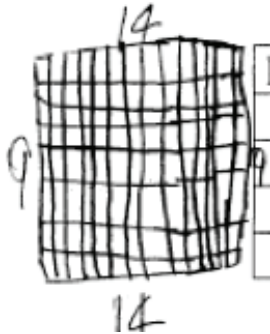


# Super Screens

Yumiko and Lucia have just started a new business called the Super Screen Company. They have invented a new kind of glass and a special metallic trim to go around the edge of the glass. The glass will be used for rectangular screens on video game consoles and flat screen televisions. Yumiko and Lucia are thinking about the different size screens they can make and what they should charge.



Lucia has started a table with some of the sizes of screens, but it is incomplete.



**Super Screen Sizes**

Length	Width	Area	Perimeter
2 inches	2 inches	4 square inches	8 inches
8 inch	9 inch	72 square inches	44 inches
9 inches	14 inch	126 square inches	46 inch
3 inches	8 inches	24 square inches	22 inches

## 1 Compare the 2-inch-by-2-inch screen and the 3-inch-by-8-inch screen:

- How much longer is the trim around the larger screen? 14 inches
- How many times larger is the area of the glass for the larger screen? 20 times larger

**T1**

Student gives the correct answer, 14, in the first part. Answer, 20, is incorrect.



### Super Screen Sizes

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2 inches	2 inches	4 square inches	8 inches
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- 2 What is the width of the 9-inch-long screen? 14 inches

T2

Student gives correct answer and correct work is shown.

Show your work.

$$14 \times 9 = 126 \text{ Area}$$

- 3 What is the length and width of the screen with the 72-square-inch area?

The length is 8 and the width is 9 inches

T3

Student found two numbers that give an area of 72, but it does not meet the requirement of 44 inches for the perimeter.

Show your work.

$$\begin{array}{r} 8 \\ \times 9 \\ \hline 72 \text{ area} \end{array}$$



- 4 What is the area, in square inches, of a screen that is 3 feet long and 42 inches wide?

1, 512 square inches

Show your work.

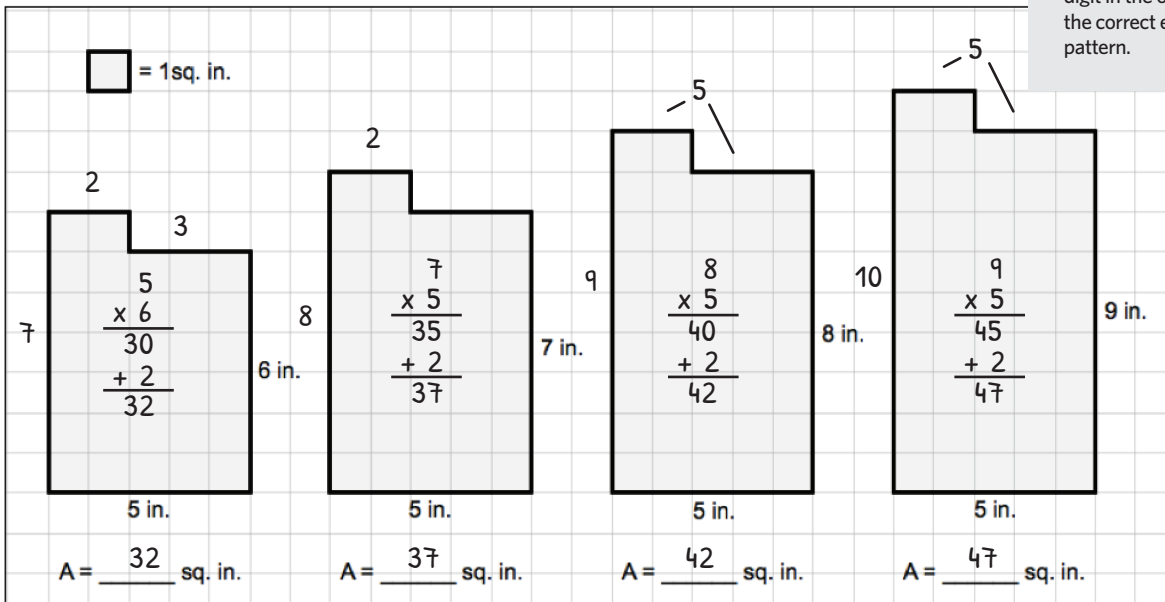
$$\begin{array}{r} 36 \\ \times 42 \\ \hline 72 \\ 1440 \\ \hline 1,512 \end{array}$$

T4

Student gives correct answer with correct work: converts 3 ft. to 36 in., multiplies 36 x 42.

Yumiko is making special 5-inch wide screens. The screens' area will be rectangular, with a 2-square-inch area added for display. Yumiko wants to make an organized chart that can later be used to find the cost of the screen and the trim.

- 5a Find the area of each screen for Yumiko so she can make an organized table.



T5

Student gives all correct areas. Student doesn't give the correct digit in the ones place, but gives the correct explanation for the pattern.

- 5b If they made a 5-inch-wide by 23-inch-long screen like those above, and Yumiko calculated the area, which digit would be in the ones place? 5

- 5c Identify the pattern and explain how you know *without* calculating the actual area.

The pattern is that it goes up 5 in. each screen if you go in order. I know because above it goes 32, 37, 42, 47. 5 number gap in each.



- 6 The area of the 5-inch-by-5-inch screen with the additional 2 square inches of area is 27 square inches and its perimeter is 22 inches. The glass to make the screen costs 10 cents for each square inch, and the trim costs 5 cents for each inch.

How much is the total cost for a 5-inch-by-5-inch screen including glass and trim? \$3. 80

Show your work.

T6

Student shows the correct answer with correct work.

$$\begin{array}{r} 27 \\ \times 10 \\ \hline \$2.70 \end{array}$$

$$\begin{array}{r} 22 \\ \times 5 \\ \hline \$1.10 \end{array}$$

$$\begin{array}{r} 2.70 \\ 1.10 \\ \hline 3.80 \end{array}$$

- 7 Lucia has 310 square inches of glass. She would like to use the glass to make screens in which each screen has an area of 8-square-inches. She thinks she can make exactly 35 screens. However, Lucia is incorrect. Use estimation to explain why Lucia's thinking is incorrect.

She is wrong because  $31 \div 8$  is 3 and  $3 \times 10$  is 30 so she is 5 or less wrong.

T7

The student uses estimation to reason, but arrives at an incorrect estimate.

# Sample B - Anchor Paper Commentary

**Subject/Course:** Math

**Task Title:** Super Screens

**Grade Level:** 4

**Year:** 2015-2016

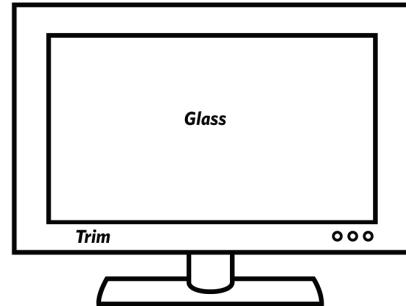
Rubric Traits	Anchor Score	Commentary/Rationale	Maximum Score
<b>T1</b> Trait 1	<b>1</b>	The student finds one correct answer; subtracting 8 from 22 to arrive at 14.	<b>2</b>
<b>T2</b> Trait 2	<b>2</b>	The student finds the correct answer 14 in., showing that $9 \times 14 = 126$ .	<b>2</b>
<b>T3</b> Trait 3	<b>1</b>	The student finds a length and width that satisfies the area requirement, but does not see the connection to the given perimeter.	<b>3</b>
<b>T4</b> Trait 4	<b>3</b>	The student finds the correct answer, 1,512 sq. in., by first converting 3 ft. to 36 in., although not shown, then multiplying 36 and 42.	<b>3</b>
<b>T5</b> Trait 5 (a-c)	<b>3</b>	The student finds the area of all 4 screens. The student correctly explains the pattern to find the answer, but does not identify the ones digit correctly.	<b>4</b>
<b>T6</b> Trait 6	<b>2</b>	The student finds the correct answer, \$3.80, by multiplying the costs by the measurements and adding the products: $27 \times 10¢ + 22 \times 5¢ = \$3.80$	<b>2</b>
<b>T7</b> Trait 7	<b>1</b>	The student uses estimation to reason, but does not see that $31 \div 8$ is much closer to 4 than to 3.	<b>2</b>

**Score = 13/18, Level 3: Meeting Standards**



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Lucia has started a table with some of the sizes of screens, but it is incomplete.

**Super Screen Sizes**

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**1 Compare the 2-inch-by-2-inch screen and the 3-inch-by-8-inch screen:**

How much longer is the trim around the larger screen? 14 inches

How many times larger is the area of the glass for the larger screen? 6 times times larger

**T1**

Student gives two correct answers.



### Super Screen Sizes

Length	Width	Area	Perimeter
2 inches	2 inches	4 square inches	8 inches
8 inch	9 inch	72 square inches	44 inches
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- 2 What is the width of the 9-inch-long screen? 14 inches

T2

Student gives a correct answer and correct work is shown.

Show your work.

$$126 \div 9 = 14 \text{ inches}$$

$$\begin{array}{r} 14 \\ 9 \overline{) 126} \\ \underline{- 9} \phantom{0} \\ 36 \\ \underline{- 36} \\ 0 \end{array}$$

- 3 What is the length and width of the screen with the 72-square-inch area?

length is 8 in, width is 9 in

T3

Student finds two numbers that have an area of 72 square inches. The student mistakenly finds that the perimeter is 44, when it is 34 inches ( $8 \times 2 + 9 \times 2 = 34$ ).

Show your work.

$$(8 \times 2) + (9 \times 2) = 44 \text{ inches}$$

$$44 \text{ inches} = 44 \text{ inches}$$



- 4 What is the area, in square inches, of a screen that is 3 feet long and 42 inches wide?

126 square inches

$$3 \times 42 = 126 \text{ inches}^2$$

Show your work.

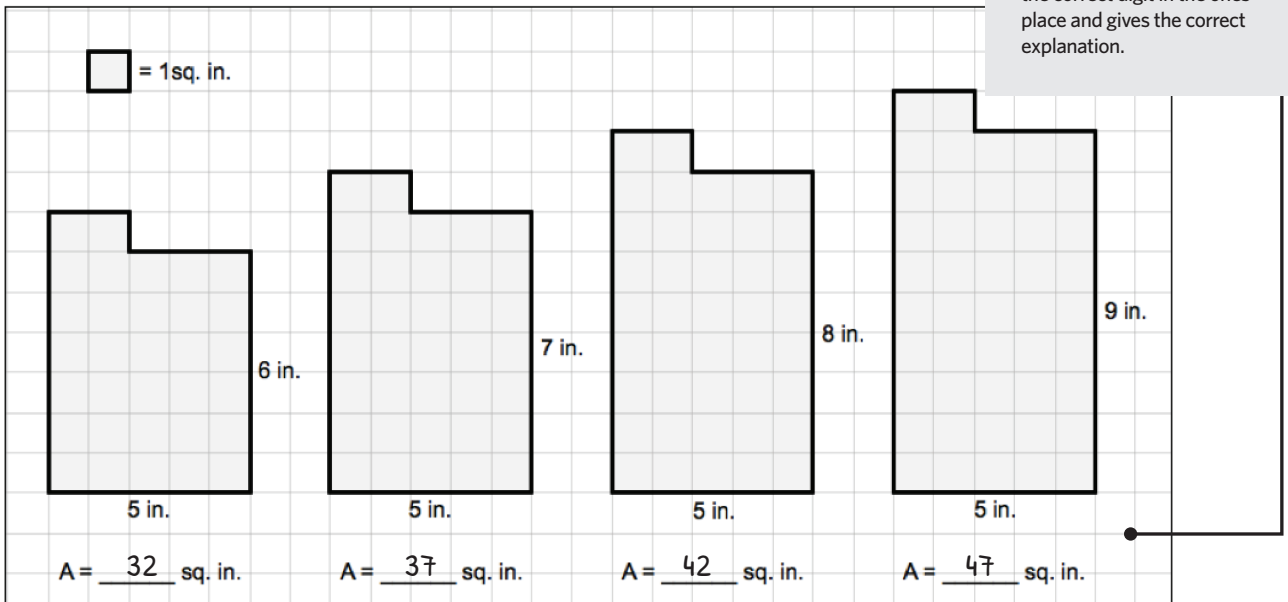
$$\begin{array}{r} 42 \\ \times 3 \\ \hline 126 \end{array}$$

T4

Student gets incorrect answer because he/she did not convert 3 feet into inches.

Yumiko is making special 5-inch wide screens. The screens' area will be rectangular, with a 2-square-inch area added for display. Yumiko wants to make an organized chart that can later be used to find the cost of the screen and the trim.

- 5a Find the area of each screen for Yumiko so she can make an organized table.



T5

Student gives all four correct areas. Student identifies the correct digit in the ones place and gives the correct explanation.

- 5b If they made a 5-inch-wide by 23-inch-long screen like those above, and Yumiko calculated the area, which digit would be in the ones place? 7 in

- 5c Identify the pattern and explain how you know *without* calculating the actual area.

The pattern for the screen in ones place is 2, 7, 2, 7 and if 23 is the length the ones will be 7 in.





- 6 The area of the 5-inch-by-5-inch screen with the additional 2 square inches of area is 27 square inches and its perimeter is 22 inches. The glass to make the screen costs 10 cents for each square inch, and the trim costs 5 cents for each inch.

How much is the total cost for a 5-inch-by-5-inch screen including glass and trim? \$3.80

Show your work.

$$\begin{aligned} 10 \times 27 &= 270\text{¢} = \$2.70 \\ 5 \times 22 &= 110\text{¢} = \$1.10 \\ 1.10 + 2.70 &= \$3.80 \end{aligned}$$

T6

Student gives a correct answer and correct work is shown.

- 7 Lucia has 310 square inches of glass. She would like to use the glass to make screens in which each screen has an area of 8-square-inches. She thinks she can make exactly 35 screens. However, Lucia is incorrect. Use estimation to explain why Lucia's thinking is incorrect.

T7

The student finds the correct number of screens to show that Lucia is incorrect, but does not use estimation.

$$35 \times 8 = 280 \text{ in}^2$$

$$310 - 280 = 30 \text{ in}^2$$

$$30 \div 8 = 3 \text{ screens R6 in}^2$$

$$35 + 3 = 38 \text{ screens}$$

$$38 > 35$$

So it's incorrect.

$$\begin{array}{r} 35 \\ \times 8 \\ \hline 280 \end{array}$$

# Sample C - Anchor Paper Commentary

**Subject/Course:** Math

**Task Title:** Super Screens

**Grade Level:** 4

**Year:** 2015-2016

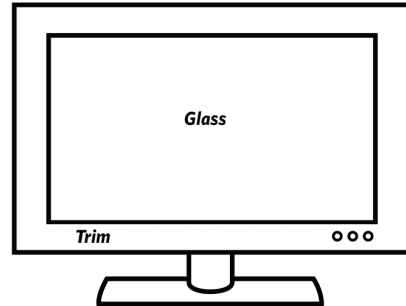
Rubric Traits	Anchor Score	Commentary/Rationale	Maximum Score
<b>T1</b> Trait 1	2	The student finds the correct answers; subtracting 8 from 22 to arrive at 14 and dividing $(8 \times 3)$ by $(2 \times 2)$ to arrive at 6.	2
<b>T2</b> Trait 2	2	The student finds the correct answer 14 in., showing that $126 \div 9 = 14$	2
<b>T3</b> Trait 3	1	The student finds a length and width that satisfies the area requirement, but because of a calculation error, student mistakenly thinks that the perimeter is 44 inches when it is 34 inches.	3
<b>T4</b> Trait 4	1	The student correctly multiplies 3 and 42, using the correct operation, but does not first convert 3 ft. to 36 in. and cannot get the correct answer.	3
<b>T5</b> Trait 5 (a-c)	4	The student finds the area of all 4 screens. The student correctly explains the pattern to find the answer, and identifies the correct digit in the ones place.	4
<b>T6</b> Trait 6	2	The student finds the correct answer, \$3.80, by multiplying the costs by the measurements and adding the products:  $10 \times 27 = 270\text{¢} = \$2.70$ $5 \times 22 = 110\text{¢} = \$1.10$ $1.10 + 2.70 = \$3.80$	2
<b>T7</b> Trait 7	1	The student shows Lucia is wrong by finding the correct answer, but does not use estimation.	2

**Score = 13/18, Level 3: Meeting Standards**



## Super Screens

Yumiko and Lucia have just started a new business called the Super Screen Company. They have invented a new kind of glass and a special metallic trim to go around the edge of the glass. The glass will be used for rectangular screens on video game consoles and flat screen televisions. Yumiko and Lucia are thinking about the different size screens they can make and what they should charge.



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**1 Compare the 2-inch-by-2-inch screen and the 3-inch-by-8-inch screen:**

How much longer is the trim around the larger screen? 1 inches

How many times larger is the area of the glass for the larger screen? 20 times larger

**T1**

Student gives two incorrect answers.



### Super Screen Sizes

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2 inches	2 inches	4 square inches	8 inches
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- 2 What is the width of the 9-inch-long screen? 14 inches

T2

Student gives correct answer with correct work.

Show your work.

I know  $9 \times 11 = 99$  So I just kept adding nines until I got to 126 because 126 is the area.

$$9 \times 14 = 126$$

- 3 What is the length and width of the screen with the 72-square-inch area?

8 inches is the length. 9 inches is the width.

T3

Student found numbers that will give the correct area, but did not take perimeter into consideration.

Show your work.

72 is the area. I need  $? \times ? = 72$

I know  $8 \times 10 = 80 - 8 = 72$  So ...  $8 \times 9 = 72$



- 4 What is the area, in square inches, of a screen that is 3 feet long and 42 inches wide?

\_\_\_\_\_ 150 square inches

Show your work.

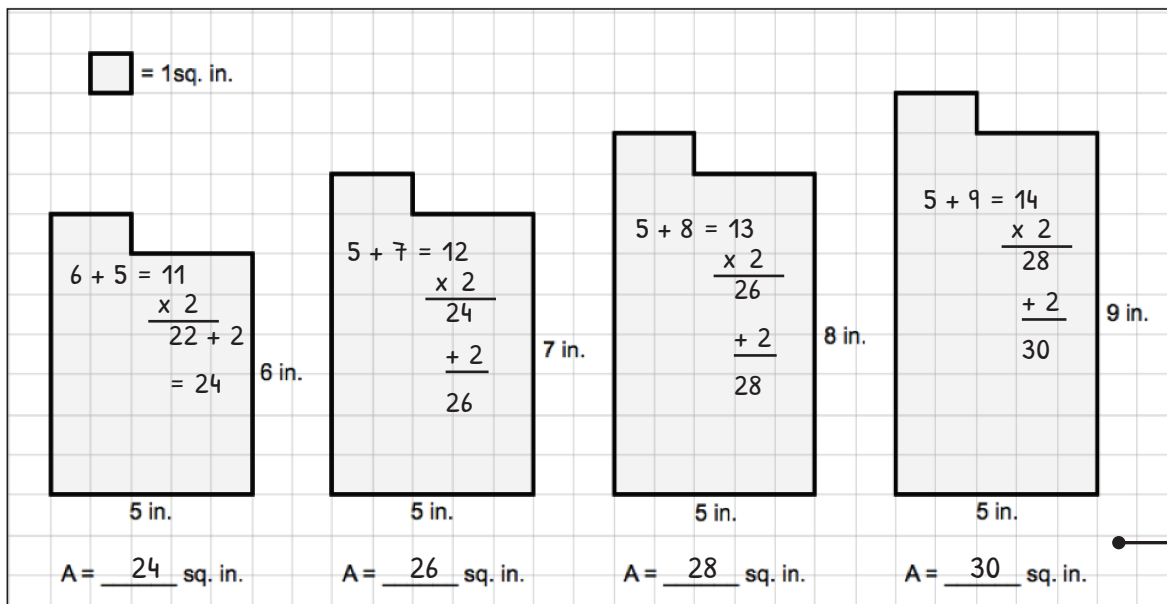
$$\begin{array}{r} 3 \times 12 = 36 \\ + 42 \\ \hline 78 \times 2 = 150 \end{array}$$

T4

Student converts 3 ft. to 36 in., but the multiplication is incorrect, as the student uses the dimensions to find perimeter.

Yumiko is making special 5-inch wide screens. The screens' area will be rectangular, with a 2-square-inch area added for display. Yumiko wants to make an organized chart that can later be used to find the cost of the screen and the trim.

- 5a Find the area of each screen for Yumiko so she can make an organized table.



- 5b If they made a 5-inch-wide by 23-inch-long screen like those above, and Yumiko calculated the area, which digit would be in the ones place?  $\frac{56 \text{ (adding 2)}}{58}$

- 5c Identify the pattern and explain how you know without calculating the actual area.

$$5 + 23 = 28 \times 2 = 56 \quad \text{(adding a two)} \quad (56 + 2 = 58)$$

T5

The areas are not correct, the digit in the ones place is not identified, and the pattern is not explained.



- 6 The area of the 5-inch-by-5-inch screen with the additional 2 square inches of area is 27 square inches and its perimeter is 22 inches. The glass to make the screen costs 10 cents for each square inch, and the trim costs 5 cents for each inch.

How much is the total cost for a 5-inch-by-5-inch screen including glass and trim? \$3. 80

Show your work.

T6

Student gives correct answer with correct work.

$$27 \times 10\text{¢} = \$2.70$$

$$22 \times 5\text{¢} = \$1.10$$

$$\underline{\$ 3. 80}$$

- 7 Lucia has 310 square inches of glass. She would like to use the glass to make screens in which each screen has an area of 8-square-inches. She thinks she can make exactly 35 screens. However, Lucia is incorrect. Use estimation to explain why Lucia's thinking is incorrect.

T7

The student correctly shows that  $8 \times 40$  is 320, 10 more than the given amount of 310. However, the student concludes that there are 31 screens, and uses this answer.

$$8 \times 20 = 160 \times 2 = \underline{320} - 10 = 310$$

$$8 \times 2 = 16 \times 2 = 32$$

$$\begin{array}{r} 16 - 1 = 15 \\ \underline{- 1} \\ 31 \end{array}$$

$$15 + 16 = \underline{31}$$

31 screens

# Sample D - Anchor Paper Commentary

**Subject/Course:** Math

**Task Title:** Super Screens

**Grade Level:** 4

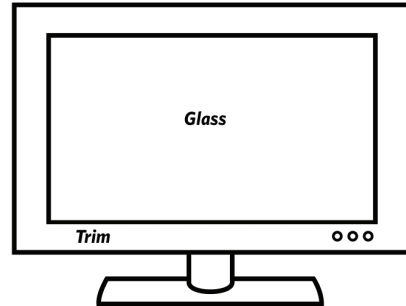
**Year:** 2015-2016

Rubric Traits	Anchor Score	Commentary/Rationale	Maximum Score
<b>T1</b> Trait 1	0	Student gives two incorrect answers.	2
<b>T2</b> Trait 2	2	The student arrives at the answer 14 by thinking in terms of $9 \times \_\_ = 126$ , starting at $9 \times 11$ and adding by 9's until they reach $14 \times 9 = 126$ .	2
<b>T3</b> Trait 3	1	The student finds a length and width that satisfies the area requirement, but does not see the connection to the given perimeter.	3
<b>T4</b> Trait 4	1	The student correctly converts 3 ft. to 36 in., but the multiplication is incorrect, as the student uses the dimensions to find perimeter.	3
<b>T5</b> Trait 5 (a-c)	0	Student gives incorrect areas for all four screens. Student also misidentifies the digit in the ones place and the pattern is not explained.	4
<b>T6</b> Trait 6	2	The student finds the correct answer, \$3.80, by multiplying the costs by the measurements and adding the products:  $27 \times 10¢ = \$2.70$ $22 \times 5¢ = \$1.10$ $\$2.70 + \$1.10 = \$3.80$	2
<b>T7</b> Trait 7	1	The student finds that $8 \times 40 = 320$ , and that that is 10 more than 310. However, the student incorrectly concludes that there are 31 screens to show that Lucia is incorrect.	2

**Score = 7/18, Level 2: Approaching Standards**

# Super Screens

Yumiko and Lucia have just started a new business called the Super Screen Company. They have invented a new kind of glass and a special metallic trim to go around the edge of the glass. The glass will be used for rectangular screens on video game consoles and flat screen televisions. Yumiko and Lucia are thinking about the different size screens they can make and what they should charge.



Lucia has started a table with some of the sizes of screens, but it is incomplete.

**Super Screen Sizes**

Length	Width	Area	Perimeter
2 inches	2 inches	4 square inches	8 inches
9	8 inches	72 square inches	44 inches
9 inches	13 inches	126 square inches	12 inches
3 inches	8 inches	24 square inches	22 inches

$$\begin{array}{ccccccc} & 2+10 & & +2 = 14 & & & \\ 8 & 10 & & 20 & 22 & & \end{array}$$

$$\begin{array}{ccccccc} & & 10 & 4 = 20 & & & \\ 4 & 10 & & 20 & 24 & & \end{array}$$

- 1 Compare the 2-inch-by-2-inch screen and the 3-inch-by-8-inch screen:**

I'm just taking a guess...

**How much longer is the trim around the larger screen?** 14 inches

**How many times larger is the area of the glass for the larger screen?** 20 times larger

**T1**

Student gives one correct answer, 14.





### Super Screen Sizes

Length	Width	Area	Perimeter
2 inches	2 inches	4 square inches	8 inches
9	8 inches	72 square inches	44 inches
9 inches	13 inches	126 square inches	12 inches
3 inches	8 inches	24 square inches	22 inches

- 2 What is the width of the 9-inch-long screen? 8 inches

Show your work.

I thought that since  $9 \times 8 = 72$  that would be the awnser?

T2

Student gives the wrong answer and the work does not show any computation to justify the answer.

- 3 What is the length and width of the screen with the 72-square-inch area?

$9 \times 8$

Show your work.

Look at # 2 

T3

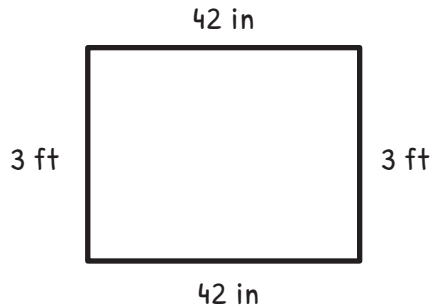
Student found two numbers that give an area of 72 square inches, however student does not take the perimeter into consideration.



- 4 What is the area, in square inches, of a screen that is 3 feet long and 42 inches wide?

6 ft 82 square inches square inches

Show your work.

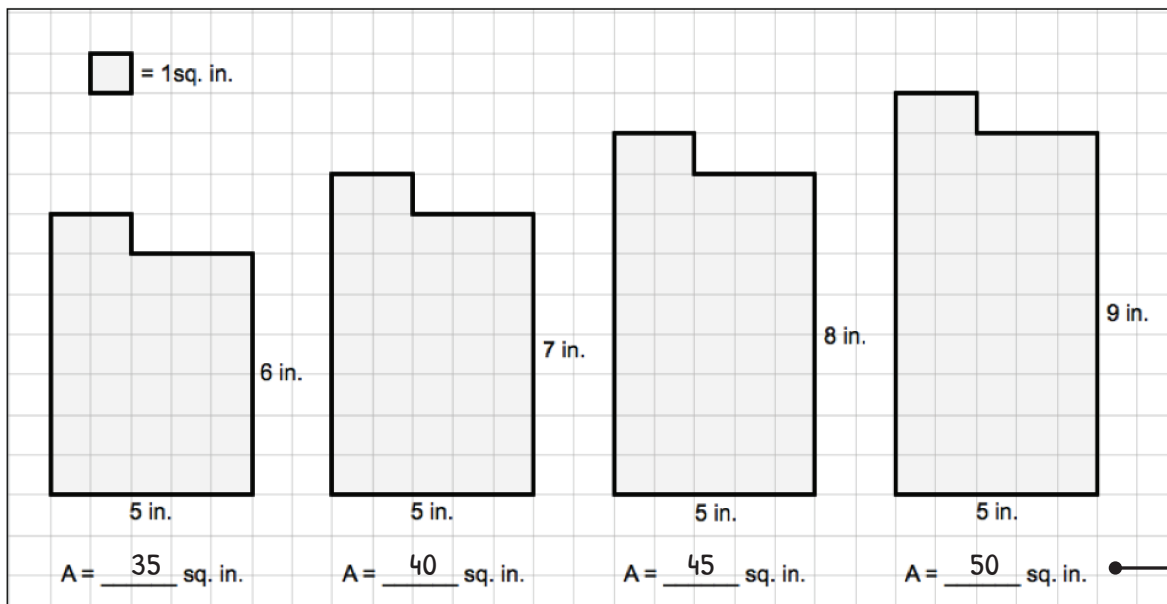


T4

Student does not convert feet into inches. Student adds the perimeter of the shape drawn in the student work.

Yumiko is making special 5-inch wide screens. The screens' area will be rectangular, with a 2-square-inch area added for display. Yumiko wants to make an organized chart that can later be used to find the cost of the screen and the trim.

- 5a Find the area of each screen for Yumiko so she can make an organized table.



- 5b If they made a 5-inch-wide by 23-inch-long screen like those above, and Yumiko calculated the area, which digit would be in the ones place? 45

- 5c Identify the pattern and explain how you know *without* calculating the actual area.

I know that  $23 \times 5 = 115$

T5

Student gives all four incorrect areas, the digit in the ones place is not identified, and the pattern is not explained.



- 6 The area of the 5-inch-by-5-inch screen with the additional 2 square inches of area is 27 square inches and its perimeter is 22 inches. The glass to make the screen costs 10 cents for each square inch, and the trim costs 5 cents for each inch.

How much is the total cost for a 5-inch-by-5-inch screen including glass and trim? \$3. 80

Show your work.

T6

Student gives a correct answer and correct work is shown.

$$\begin{array}{r} \$27 \times 10\text{¢} = \$2.70 \\ 22 \times 5 = \$ .10 + \\ \hline \$3.80 \end{array}$$

- 7 Lucia has 310 square inches of glass. She would like to use the glass to make screens in which each screen has an area of 8-square-inches. She thinks she can make exactly 35 screens. However, Lucia is incorrect. Use estimation to explain why Lucia's thinking is incorrect.

I know that  $310 \times 8 = 248$  and since its in sq inches its 24

T7

Student gives an incorrect explanation.

# Sample E - Anchor Paper Commentary

**Subject/Course:** Math

**Task Title:** Super Screens

**Grade Level:** 4

**Year:** 2015-2016

Rubric Traits	Anchor Score	Commentary/Rationale	Maximum Score
<b>T1</b> Trait 1	<b>1</b>	The student finds one correct answer; subtracting 8 from 22 to arrive at 14, but subtracts instead of dividing to find the second answer.	<b>2</b>
<b>T2</b> Trait 2	<b>0</b>	Student gives the wrong answer and the work does not show any computation.	<b>2</b>
<b>T3</b> Trait 3	<b>1</b>	The student finds a length and width that satisfies the area requirement, but does not see the connection to the given perimeter.	<b>3</b>
<b>T4</b> Trait 4	<b>0</b>	Student does not convert feet into inches. Student adds the perimeter of the shape drawn in the student work.	<b>3</b>
<b>T5</b> Trait 5 (a-c)	<b>0</b>	The student seems to be thinking in terms of perimeter, and doesn't find the areas correctly. The digit in the ones place is not identified, and the pattern is not correctly explained.	<b>4</b>
<b>T6</b> Trait 6	<b>2</b>	The student finds the correct answer \$3.80 by multiplying the costs by the measurements and adding the products:  $\$27 \times 10¢ = \$2.70$ $22 \times 5¢ = \$1.10$ $\$2.70 + \$1.10 = \$3.80$	<b>2</b>
<b>T7</b> Trait 7	<b>0</b>	The explanation is incorrect.	<b>2</b>

**Score = 4/18, Level 1: Attempting Standards**

# Trait to Standard Alignment Chart

		Common Core Standards											
Trait	Question	K	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	Algebra 1	Algebra 2	Geometry
1	1	K.CC.1	1.NBT.1	2.NBT.4	3.MD.7b	4.OA.2	3.NF.1	6.RP.1	7.EE.3	8.F.4	F.IF.4	G.SRT.8	G.CO.9
2	2	K.CC.2	2.NBT.2	2.NBT.4	3.OA.6	4.MD.3	5.NF.1	6.RP.3a	7.EE.1	8.F.4	F.IF.6	G.SRT.8	G.CO.10
3	3	1.NBT.1	1.NBT.5	2.NBT.7	4.NBT.6	4.OA.4	5.NF.1	6.EE.9	7.RP.3	8.F.4	F.BF.1a,b and F.BF.2	G.SRT.8	G.SRT.4
4	4	K.CC.1	2.NBT.8	2.NBT.4	3MD.7b	4.NBT.5	5.NF.4a	6.RP.3c	7.EE.2	8.EE.8b	4.OA.5	G.SRT.8	G.SRT.5
5	5	1.NBT.5	1.NBT.1	2.NBT.1	3.NBT.3	4.OA.5	5.NF.2	6.RP.3b	7.EE.2	8.EE.8a	F.BF.1a,b and F.BF.2	F.BF.1a	G.SRT.5
6	6	K.CC.3	2.NBT.3	2.NBT.1	3.OA.3	4.MD.2	5.NF.3	6.RP.2	7.RP.3	8.F.2	F.IF.5	F.TF.8	G.CO.5
7	7	1.NBT.1	1.NBT.3		3.OA.8	4.OA.3	5.NF.7b	6.RP.3	7.EE.4b	8.F.4	A.REI.7		G.SRT.5
8	8	K.CC.4	2.NBT.4				5.NF.7a				A.SSE.3a		
9	9	K.CC.6	1.OA.7										
10	10	1.NBT.3	2.OA.2										
11	11	K.OA.1	1.OA.1										
12	12	1.OA.7	2.OA.1										
13	13	K.OA.2											
14	14	1.OA.1											